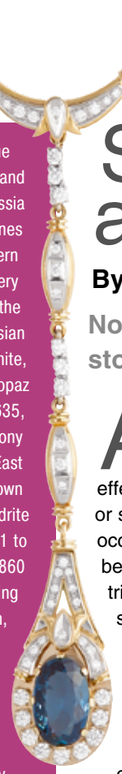
Love for gemstones, collecting unique minerals, stone cutting, faceting and jewellery craft flourished in Russia since olden times. However, stones imported from Byzantine and Eastern countries were mostly used in jewellery production up to the middle of the 17th century. The output of Russian gemstones started later on. Malachite, amethyst, beryl, rhinestone and topaz were discovered in the Urals in 1635, and agate, carnelian, chalcedony and jasper were found down the East Siberian riversides. Almost all known by now layers of emerald and alexandrite were revealed in the Urals from 1831 to 1839. The time frame from 1810 to 1860 was very successful for discovering mines of topaz, demantoid, zirconium, tourmaline, ruby, sapphire, chrysolite, diamonds, rhodonite, azurite, which created a solid base for establishing stone cutting and jewellery business in Russia with its high level of development that quickly gained a world acknowledgement.

Within the next 30 years the strong school of geologists and gemstone specialists was established, and their efforts enhanced the industrial prospects of the gemstone region of the Urals and favoured the discovery of some new layers of precious opal in Primorye, jadeite in West Sayany and in the Polar Urals, jade in East Sayany and the Baikal region, tourmaline in Zabaikalye, as well as the only one the world mine of hromedyopsit and charoite in Yakutia.

Until the beginning of the 90s Russia was one of the leaders of the gemstone world market and can be one again considering potential prospects of its mineral resource base. Its large territory, an exceptional diversity of the geological structure and a low level of exploring of the country's certain regions can be a safe guarantee for finding new layers of gemstones that would be highly demanded.

In the next few issues of RDJ we will publish a number of articles on the most interesting types of gemstones of the Russian origin under the heading "Germs of Russia".



NECKLACE ALMAZ-HOLDING

Stone of strong and noble people

By Evgeniy Lyashchenko*

Nowadays, alexandrite is one of the rarest precious stones and one of the most expensive ones.

Alexandrite is a chrome containing variety of chrysoberyl (Al_2BeO_4) with colour changing effect. The mineral forms small tabular or short prismatic crystals, but usually occurs in the form of aggregates and beautiful triplets. Sometimes these triplets have a hexagonal lamellar shape. Facets of these crystals are usually shining. Very often they have beautiful scratching in the direction of a hexaform star. Alexandrite is only a little less hard (8.5 on the Mohs' scale) as corundum and diamond.

Alexandrite was known as early as two thousand years B. C. in India and later in Ancient Greece, but it was always mistakenly taken for other minerals. Until the beginning of the 20th century, emerald mines in the Urals were the only place of large-scale alexandrite production. Best quality large crystals were extracted at the Krasnobolotsky mine. At the Lyoublinsky (now called Kroupskaya), Mariinsky (Malyshevsky) and Starkovsky mines alexandrite was extracted together with emerald but was of minor importance and was not at all referred to precious stones. Nobody paid proper attention to this stone and it was even deliberately avoided as in miners' opinion any occurrence of alexandrite in the mine was a sign that the rock is void of any good quality emeralds. But in spite of this superstition, after several decades of development practically all occurrences of alexandrite were completely extracted and abandoned. According to the Institute of Minerals Synthesis (VNIISIMS), the Ural mines yielded 3 tons of alexandrite. But it is not clear whether this figure takes into account many years' wild mining by prospectors, leaseholders and foreign companies. It is known that the best crystals of alexandrite extracted in the pre-Soviet times were moved out of Russia. The largest jewellery grade crystal found in the Urals in the beginning of development weighed 531.5 ct.

Unique high quality clear crystals of alexandrite can be found in the museum of the St.-Petersburg Mining Institute. Some of them reach the size of 6 x 3 cm. Most famous aggregate of alexandrite crystals called "Kochoubey's druse" can be found in the Fersman Mineralogical Museum of the Russian Academy of Sciences. The druse consists of 22 large (up to 6 x 6 cm) well-formed but non-transparent triplets of dark green colour. As for modern finds, 120 kg of rough alexandrite crystals were extracted from one pocket at Malyshevskoye gemstone deposit in 1978. After 1991 these stones were sold at trade fairs primarily to Germany, Japan and Canada. In 1994 a 350 g crystal of alexandrite was extracted at the same gemstone deposit (in 1998 it was delivered to the state stockpile agency Gokhran).

Nowadays, major world suppliers of high quality alexandrites are Brazil and, to a lesser degree, Tanzania, Zimbabwe and Sri-Lanka. Now and then small lots of lower quality stones are offered from Myanmar, USA, India and Madagascar. Alexandrite production in all those countries is performed only at placer deposits.

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First lots of alexandrites from Ceylon appeared in Europe in 1908. Stones from Ceylon were bigger than alexandrites of the Urals, but at the same time they had primarily dark grassy-green and olive-green colour with bluefish reflections. It was also in Ceylon where a superb quality 1,876 ct crystal was found, which is considered the largest in the world. A polished 65.7 ct stone in the museum of the Smithsonian Institute of Washington is also a unique specimen with regards to size and quality.

Brazilian and African alexandrites are dark brownish-green in daylight and they are usually redder than Ural alexandrites in artificial light, but their colour change contrast is not so high as compared with Russian stones. However, stones produced at a deposit discovered in 1987 in a Brazilian municipal district of Itabira (state of Minas Gerais) are distinguished by supreme quality and a distinct colour change effect from dark bluish-green to violet-red.

Because the occurrences of alexandrite are extremely rare and in spite of a wide geography of alexandrite deposits, this coloured gem is produced in truly scanty quantities. Irreproachable jewellery grade crystals are unique, which makes alexandrite a most rare jewellery stone. It is also one of the most expensive gemstones. High quality polished stones weighing 5 - 10 ct with exclusively high colour changing effect are offered at $30,000 per carat. However, in reality the eventual sales price is usually negotiated and therefore it is always lower. At the same time, there is a known instance where a 5 ct stone was purchased for $200,000. According to statistical data, alexandrite is dramatically gaining popularity. For the past decades its price has grown 25 – 30 times. Prices of collector's specimens (crystal on a piece of rock or pure triple crystal) are also high and reach $8,000 per specimen.

Growing of synthetic alexandrite was started in 1973 by Creative Crystals Inc. of Danville, California, and a bit later in a crystal growing laboratories of Novosibirsk in Russia (1980) and in Japan. Synthetic alexandrite is produced in small lots. Grown crystals are practically identical to natural stones (no suspicion is aroused among the buyers) and therefore they are actively sold at the price of natural alexandrite. It is a surprising fact that many dealers and sellers don't even suspect any falsification.

Alexandrites of the Urals have always been highly valued on the world market due to their superb colour characteristics and a strong reversion (grade of colour change contrast) but at the same time these stones have been smaller and with lower clarity and transparency as compared to specimens from Brazil and Sri-Lanka. There are no any proven alexandrite reserves in Russia, which are included in the State balance sheet. Any probable reserves (accounting for about 4.5 tons) are concentrated at Sverdlovskoye and Cheremshanskoye deposits in Sverdlovsk region. Production of alexandrites in Russia was suspended in 1995 as soon as the Malyshevskoye emerald deposit was abandoned. The only exception was the year 2007 when officially 9.2 kg of rough alexandrites were extracted.

i The destiny of alexandrite is closely linked with the Russian history. In the end of the 19th century alexandrite was favoured as the stone of nobleness and self-sacrifice. Alexandrite acquired this "fame" after the assassination of the Russian tsar Alexander II in 1881. The name "alexandrite" had appeared a bit earlier. In 1834 Nils Gustaf Nordenskiöld, a Finnish mineralogist, discovered a variety of chrysoberyl in famous emerald mines of the Urals. The mineral had a stunning optical effect, which consisted in changing colour from cold bluish-green and neutral yellow-green to hot raspberry pink and purple-violet when daylight illumination changed to artificial one. One had the impression that emerald and ruby were combined in one mineral, which had always wrapped this stone in a shroud of mystery.

i Nils Nordenskiöld not only pursued science, but took part in upbringing and educating a young prince Alexander Romanov. He exerted a profound influence on the world-view of the future tsar. Two concurrent events were inseparably interlaced in the heart of the scientist: the year when the young prince came of age and this mineral was discovered. The stone acquired the name "alexandrite". Nobody would have suspected that young Alexander, hear to the throne, whose name means "protector of the people", would become a great tsar and then come to a tragic end. As is known, stability of character was not the strong suit of the absolute sovereign and alexandrite, as if in support of its godfather, has the ability of changing colour. In a remarkable manner this stone prophesied the tragic fate of the tsar. Nikolai Leskov, a famous Russian writer, once said about this gemstone by his book character, an old cutter: "It was green all over like hope, but saturated with blood closer to the night. It combined the green morning and the bloody evening". And indeed, the reign of the Russian emperor was marked by several momentous events. Among them was the abolition of serfdom in 1861 and the defeat of the Ottoman Empire in 1877 - 1878. But the worldwide fame of the emperor could not prevent his tragic end. Having survived several attempts on his life, Alexander II was killed by a bomb thrown by a member of the "Narodnaya Volya" ("People's Freedom") terrorist organization in 1881.

RING PERASKEVA

The fate of alexandrite in Russia was somewhat similar to the fate of the man, in whose honour it was called. After about one hundred years' reign this stone disappeared in jeweller's workshops. However, alexandrite has all the necessary prerequisites to restore its former glory. This stone can and must become a symbol of Russia and the Russian people. On the one hand, alexandrite reflects the idea of the Russian spirituality, which combines wisdom, geniality, tolerance, and, on the other hand, it reflects resoluteness and readiness for self-sacrifice. ◆